Chapter 5 Discussion

Introduction

Learning language has become less restricted by place because mobile technology allows everyone access to many new learning sources. It examines the results of the study which highlight how using Duolingo plays a part in learning a new language, with a primary focus on gaining new vocabulary and confidence in speaking. With the help of quantitative and qualitative evidence, the discussion explains the results in the context of learning theories such as behaviourism and constructivism and it connects them to existing debates about using technology to teach languages.

The chapter kicks off by recapping the main findings by showing the strengths and weaknesses of each teaching approach. Attention is paid to how mobile apps increase vocabulary and encourage students to keep learning, through fun games and quick results, yet they are not as helpful for communicating clearly in everyday situations. You will also find out how personal traits of learners such as their age and earlier language exposure, shape the strength of each instructional approach.

Based on what has been found, the chapter looks at what these discoveries mean for teachers, those creating curriculum and those studying new languages. Suggestions are made for blending mobile apps into classroom activities to achieve better blended learning. Methodological weaknesses and the context in which the research was done are considered when reflecting on whether the findings are widely applicable.

The chapter also reviews further research directions, suggesting that researchers should focus on studies that last for a long time and explorations of how mobile apps can be improved to support language development in all areas. The chapter sets out to offer a detailed look at modern apps used for language learning and discover how to use them in a calculated manner.

5.1 Comparative Effectiveness of Learning Modalities

5.1.1 Vocabulary Acquisition Superiority in Mobile Learning

Looking at the quantitative data, mobile learners remembered more vocabulary on average, scoring 15% higher (M = 82.4, SD = 6.1) than those in traditional classrooms (M = 70.1, SD = 7.3; p< 0.05, Cohen’s d= 0.7). This large effect size demonstrates that Duolingo’s structure is very effective at helping people acquire words. The difference is aligned with two key ideas in mobile learning which are gamification and microlearning. Duolingo’s systems such as streaks and XP points, make memorization more interesting and purposeful by using behavioural reinforcement (Skinner, 1957). In addition, bite-sized lessons make it possible to repeat words repeatedly which helps settle new vocabulary into your memory little by little. With this strategy, you divide learning into smaller amounts at a time which is more mentally manageable and helps students remember more than the way it is typically done in classrooms.

5.1.2 Classroom Advantage in Productive Skills

Classroom teaching helped students build stronger language skills, mainly in speaking. Only 24% of app users said their way of learning offered a lot of opportunities to practice speaking, compared to 38% of those learning in a classroom (Q6). Duolingo does not include real-time discussions or instant corrections from teachers which was highlighted by the participants as important in classes, so students mostly learn by themselves (Q2 responses). Because it was organized, the environment encouraged conversation with peers and plenty of practice speaking clearly. This is supported by sociocultural theory (described by Vygotsky, 1978), in which being involved in social activities with support helps people acquire skills faster. Some beginners noted that the feedback on Duolingo was not detailed enough and too similar between different exercises (Q7).

5.1.3 Motivation as a Performance Mediator

How motivated people were played an essential role in their learning outcomes. Students engaged in mobile learning stated much greater levels of intrinsic motivation (median = 4.2/5) than students in classrooms (median = 3.8/5; p < 0.01). The fact that learners have unequal progress is due to Duolingo’s reinforcement tools. Having daily goals, progress bars and virtual rewards encourages players to engage regularly by giving them quick rewards (Skinner, 1957). Surveys support this view: The majority (72%) used the app daily and 44% finished at least five lessons a week. In contrast to those who preferred DIY, structured support was appreciated by those in classrooms but many felt strained by a fixed schedule (44% gave a negative response to Q2 about finishing their tasks). How motivated learners were played a big role in performance: Consistent effort increased vocabulary for learners motivated by what they alone wanted, while persistence in tough speaking trials benefited the others supported by external positives such as the expectations of peers and instructors.

Synthesis

The information demonstrates that mobile learning is great at helping people remember vocabulary, but classrooms shine at teaching skills through teamwork. Motivation which is personally valued by app users but taught by scaffolding in schools, powers these important complementary strengths.

5.2 Learner Experience and Perceptual Differences

5.2.1 Engagement Patterns

There were obvious differences in how engagement occurred between different media. A lot of people in the Duolingo group were very involved; 72% accessed the app each day and nearly half of the participants completed more than 5 lessons each week. This result is also supported by people using the app working more on schedule than those trained in the classroom (Q2: 30% of app users followed the schedule vs. 18% in classroom sessions). Since the app was flexible, learners could study whenever they had a few minutes, whether it was on their commute or late at night (Q1 responses). It was found that classroom engagement had different results: 32% felt satisfied with students’ progress (Q10), but 28% opposed those results (selected “1,” or “strongly disagree”). About 44% of students studying in classrooms said they “strongly disagree” with completing tasks as planned, since “the regular schedule interfered with their work” (Q1 and Q2).

5.2.2 Motivational Drivers

People had very different reasons for being motivated. Respondents using apps reported being internally motivated (averaging 4.2/5) and this was mostly due to "keeping up the streak" and setting their own learning goals (Q3 answers). According to survey results (Q4–Q5), students reported that they learned due to external pressures (e.g., career aims) more than for their own needs, as only 20% pointed to strong personal motivation. It looks like appreciation from the system catches people’s attention right away. Unlike the others, classroom students got motivated by outside factors: 30% agreed that their biggest reason to learn was personal (Q4), indicating they mainly did so to please their instructor and friends. It is significant that 28% "strongly disagreed" with external motivation (Q5), so many learners are against being required to achieve certain learning outcomes. This difference reveals that apps boost personal motivation, though schools rely on students being responsible toward others.

5.2.3 Identified Pain Points

Each of these techniques showed serious limits in what they could accomplish.

Many learners pointed out that they did not get enough chance to improve their speaking skills (Q6: 24% in the app versus 38% in the classroom) and they thought the AI feedback was not accurate enough (Q7: 22% in the app versus 32% in the classroom). The qualitative analysis found that students were not satisfied with the phone calls which lacked human interaction and put limits on their progress (Q5 responses).

Scheduling rigidity was the top problem mentioned (about 44% "strongly disagreed" that they could complete their tasks on time). Many said that being locked into the same session times discouraged working people from continuing (Q1 answers).

Synthesis

On the one hand, learning online allows learners to use their own devices, engaging them more, but this format limits face-to-face interaction. In classrooms, students interact in groups and are more accountable, though they have to deal with a set structure. Such differences underline that effectiveness is dependent on the setting which points to the necessity of a blended model.

5.3 Toward an Integrated Pedagogical Framework

5.3.1 Synthesis of Complementary Strengths

Both types of data indicate that each modality has unique benefits and that these benefits are also complementary. According to the radar chart, Duolingo excels in the ease of using the system: More app users expressed satisfaction with convenience (36%) than those in classrooms (32%) and more also said they followed the planned lessons regularly (30%) than those in classrooms (18%). They confirm that the app delivers dependable interaction for a long period. Meanwhile, classrooms scored well on social activities: 24% strongly agreed the method supported “interaction with other learners” (Q8) compared to only 20% for the app which was reinforced by students saying they enjoyed “immediate responses from others” (Q2) and “communication games with other students.” In other words, mobile learning is better for practical skills, although classrooms are more effective at building group and social skills.

5.3.2 Proposed Blended Model

To make use of these synergies, I am suggesting a three-phase blended framework, built using design ideas from other themes.

Through the Duolingo app, take advantage of its vocabulary ideas and additional motivation (like streaks and points) to keep motivated while studying separately. These microlearning modules would help students keep vocabulary words safe in memory (by increasing test scores) and teach grammar with "gamified lesson preparation".

Have students apply skills in class in a workshop style. To help with speaking, instructors would do activities with the students (such as peer role-plays) and offer individual advice, as this was more important to those attending class than to those learning through the app.

The Review Cycle: Using the app for studying would support classroom work and result in a closed loop: Prepare (app) → Practice (classroom) → Get Better (app).

5.3.3 Addressing Learner-Expressed Needs

It identifies and directly addresses key areas named by the participants:

Calling the activities in the course simulations (like one using an app in a restaurant), would bridge the gap of app use in everyday language.

Being able to do work at your own speed and participate in biweekly workshops is better for people who report being too busy due to fixed schedules (44% agreed with Q2 task adherence strongly disagreeing on scheduling inflexibility).

When students are in the lab with an instructor, personal guidance from the instructor can take the place of AI’s general feedback (Q7 responses).

Similarity Between Ideas and Actual Project Work

App tasks support developing independent skills (Zone of Actual Development) in this way, while in the classroom, social support helps students advance in their learning. Gamification (Skinner, 1957) helps participants stay involved throughout the process. It actually addresses learner feedback by offering "flexibility and interactivity", as it connects innovation with a people-focused approach.

5.4 Theoretical and Practical Implications

5.4.1 Reconciling Educational Theories

The results unite two widely different educational approaches. Duolingo shows a better rate of vocabulary retention (M = 82.4 vs. 70.1; p < 0.05) which comes from how rewards and game elements are designed to strengthen repetition and reflex-like learning (Skinner, 1957). On the other hand, lessons being particularly effective for speaking practice (Q6: 38% vs. 24% app) is in line with constructivist learning theory, as explained by Vygotsky (1978). It is through working with others and getting feedback during the interaction that students’ skills are developed, being a strong application of the Zone of Proximal Development (ZPD). Moreover, these approaches are not in conflict; they help one another. Mobile apps teach skills through repetition (behaviourism), whereas in classrooms, students and teachers work together to build understanding (constructivism). A mixed teaching style unites this difference: Exercises on the app help with basic learning and classroom time polishes it with social and mental work.

5.4.2 Applications for Stakeholders

For App Developers

Enhance Speaking/Feedback Features:

Integrate conversational AI simulating real dialogues (addressing 24% "strongly agree" on speaking efficacy vs. 38% classroom).

Develop contextual feedback algorithms using natural language processing (countering Q7 critiques of "generic" corrections).

Data-Driven Justification: 62% of app users cited inadequate speaking practice (Q6), while 78% rated feedback less effective than classrooms (Q7).

For Educators

Implement Flipped Classroom Models:

Phase 1 (App Prep): Assign Duolingo micro-modules for vocabulary/grammar (leveraging 15% higher retention).

Phase 2 (In-Person Practice): Convert class time into interactive labs:

Role-plays using app-acquired vocabulary

Peer debates with instructor feedback (addressing Q8 interaction gaps)

Phase 3 (App Reinforcement): Algorithm-generated reviews of classroom content.

Operational Example:

Learners complete Duolingo’s "Food Vocabulary" unit (Phase 1). In class, they role-play restaurant scenarios using these terms while instructors correct pronunciation (Phase 2). The app later reinforces errors via spaced repetition (Phase 3).

For Curriculum Designers

Hybrid Schedules:

Biweekly 90-minute workshops + self-paced app work (resolving 44% classroom dissatisfaction with rigid scheduling).

Theoretical Synthesis in Practice

The blended approach reconciles theories pedagogically:

Behaviourism drives app phases (reward loops sustain engagement).

Constructivism governs classroom phases (social interaction refines competence).

This sequencing operationalizes Vygotsky’s ZPD: App work establishes actual development, while collaborative practice builds proximal development.

5.6 Limitations and Future Work

5.5.1 Limits of the Methodology

Some key issues should be recognized as limitations of network theory:

* The sample (N = 100) was drawn so that it had a balanced age makeup, but this decreased its ability to be generalized. Having a variety of students with different levels (from CEFR A1 to C1) will allow the findings to be generalized better.
* Since the intervention lasted just 8 weeks, it could show immediate reactions but hid any trends over a longer period. Improvements in vocabulary retention (15% higher for app users) may diminish if there is not regular practice. At the same time, users’ interest in the app may decrease.

5.7 Future Research Work.

Because of these limitations, we suggest the following approaches to grow the field:

1. How effective the Long-Term Blended Model is

In the design, there was a 6-month experiment that included app-only, classroom-only and blended learners (with at least 150 participants in each group) to evaluate:

Decrease in vocabulary knowledge (remembered at 3/6 months)

The ability to speak in formal and informal ways (IELTS-style speaking tests)

Reason: Ensures that short-term successes are maintained in the long run and makes sure the results are not short-lived.

2. Cross-Linguistic Validation

Repeat the study to see if similar results appear with agglutinative (for example, Turkish) and logographic (for example, Mandarin) languages.

Check: Does the Duolingo way of encouraging users work for non-Indo-European languages as well, since its main algorithm comes from Romance-languages?

Metric: Look at the effect sizes (Cohen’s d) of vocabulary retention in various language families to see the differences.

Chapter 6 Conclusion

6.1 Summary of Key Findings

This research study compared Duolingo (mobile app) with traditional classroom learning and noted meaningful distinctions in learning vocabulary, developing skills such as speaking or writing and engaging learners. Results of the analysis support the view that methods work well together, highlighting their strengths and weaknesses.

6.1.1 Vocabulary Acquisition Superiority of Mobile Learning

Quantitative results demonstrated a clear advantage for mobile learners in vocabulary retention. The Duolingo group scored 15% higher on standardized post-tests (M = 82.4, SD = 6.1) compared to the classroom group (M = 70.1, SD = 7.3), a difference that was statistically significant (p < 0.05) with a large effect size (Cohen’s d = 0.7). This superiority is attributed to Duolingo’s gamified microlearning architecture: bite-sized lessons facilitated spaced repetition, while streaks, XP points, and instant rewards leveraged behaviourist reinforcement principles (Skinner, 1957) to enhance engagement and recall. The app’s flexibility enabled frequent, short practice sessions (72% daily usage), directly translating to superior lexical consolidation.

Participants who learned through mobile devices had better memory for new words than people who learned from books. Students in the Duolingo group achieved a 15% higher score on standard post-tests (mean 82.4, standard deviation 6.1) than students in the classroom group (mean 70.1, standard deviation 7.3) and this difference was significant (p < 0.05). Being gamified and structured as small lessons, Duolingo’s approach enhances interest and makes the information easier to remember (Skinner, 1957). Since the app was flexible, It’s users reported using it often in short bursts (72% daily usage) which helped them build their vocabulary better.

6.1.2 Classroom Advantage in Productive Skills

Classroom time was focused on gaining speaking skills and dealing with live conversations. In the survey, 38% of pupils in the classroom ("strongly agree") were very happy with the time they had to practice speaking, compared to only 24% of those learning on their own through apps (Q6). Qualitative data showed why this distinction existed: users wanted quick feedback from others and group activities such as role-playing which were not part of what the app offered. Following Vygotsky (1978), this happens by means of social interaction within the Zone of Proximal Development (ZPD) which boosts learning. Gaining conversations skills was difficult with Duolingo, as app users noticed a major shortcoming in languages learning from mobiles.

**6.1.3 Motivational Drivers and Engagement Patterns**

Different drive types were seen in different ages. Compared to classroom students, users of Duolingo scored higher in self-motivation (median = 4.2/5 vs. 3.8/5), mainly because of what makes Duolingo attractive, for example, challenge streaks and personal goals. Seventy-two percent of users opened the app daily and 44% did ≥5 lessons per week. On the other hand, being in a classroom made students turn more toward external encouragement (e.g., care from their peers or instructors), though 44% "strongly disagreed" that they could perform tasks as planned (Q2), saying that being too set in their course was a main obstacle for them. The way the app is flexible compared to the more structured classroom experience brings attention to how each gives students a different learning experience.

Concluding Remarks

The study finds that using Duolingo or learning in a classroom both offer useful, different ways to learn languages. Thanks to its gamified and fast-learning approach, Duolingo improves how well users remember vocabulary (post-test scores were 15% higher, p < 0.05) and encourages people to continue learning (most users; 4.2/5) with how the app reinforces their efforts. On the downside, online games do not create genuine social interaction well, so most users (76%) do not report much chance to improve their speaking skill.

On the other hand, the classroom helps with speaking skills by giving immediate feedback from peers and instructors and 38% of students report being satisfied with speaking in class. However, its strict system made it hard for most learners to stay involved and a large group “strongly disagreed” they could follow the set tasks.

The key argument is formed from these results: using a blended approach brings together Skinner’s approach in mobile learning (1957) with Vygotsky’s ideas regarding classroom behaviour (1978). Duolingo lets students prepare with drills and prompts and during classroom lessons, teachers help them improve their speaking in the Zone of Proximal Development.

In the end, technology goes beyond the ways we deliver language education; it gives equal opportunity for everyone to learn a language. Mobile apps can break distance and time barriers, but it is the classroom setting that gives invaluable, human-centered refinements. Together, they help create an adaptable system that supports different learners’ needs and balances being efficient, effective, independent and responsible. Future language education will benefit from wisely merging the advantages of different technologies.